Headquarters U.S. Air Force

Integrity - Service - Excellence

Distributed Mission Operations (DMO)

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U.S. AIR FORCE

April 2003

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Overview

- **DMO for Transformation**
- **CSAF Guidance**
- **DMO Capabilities and Events**
- **Next Steps**

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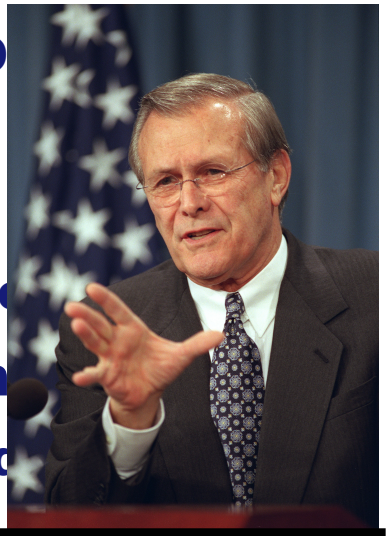
DMO for Transformation

- **Future Air and Space Forces Face Global Operational Environment With Significant Access Challenges and New Combat Capabilities**
  - **Effects-Based Focus; Expanded Non-Kinetic O**
  - **Integrated On-Demand Sensor Information**
  - **More Responsive Time Critical Targeting**
  - **Integrate Growing Arsenal of Precision Weap**
- **Future Missions Place a Premium on Readin**
  - **Sustained Operations from Home or Deployed**



"We need to change not only the capabilities at our disposal, but also how we think about war. All the high-tech weapons in the world will not transform U.S. armed forces unless we also transform the way we think, the way we train, the way we exercise and the way we fight."

Donald Rumsfeld, SECDEF

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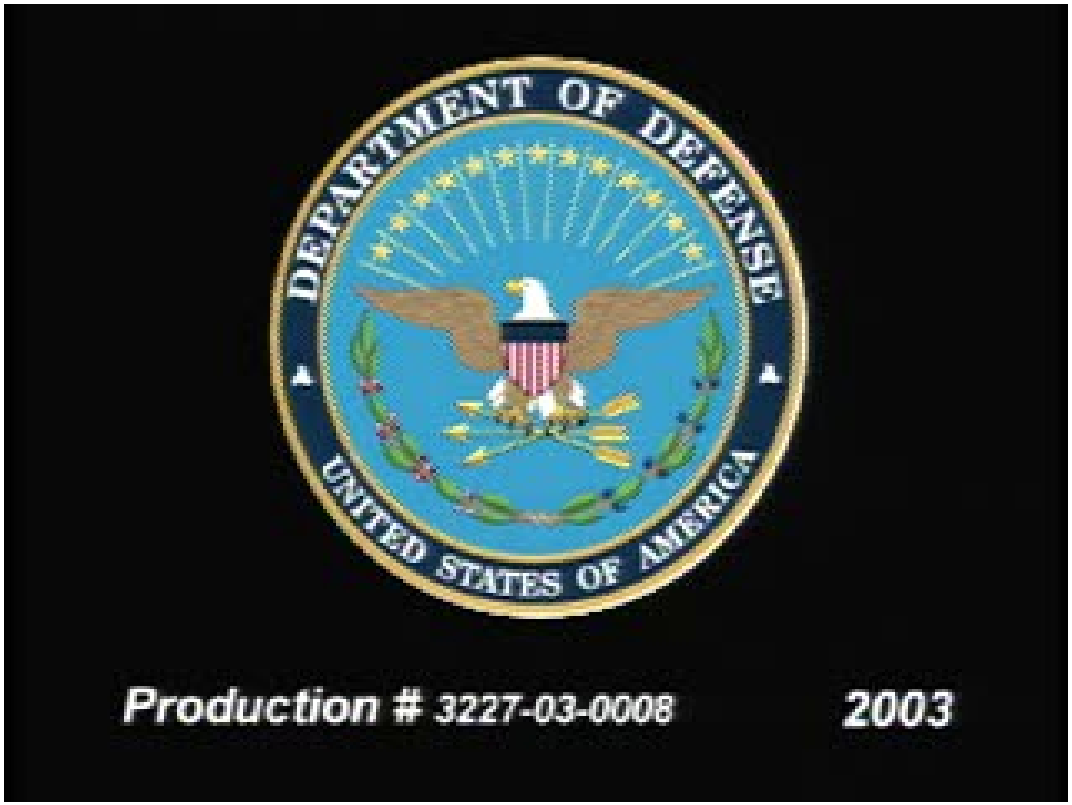
DMO Video



DMO for Transformation

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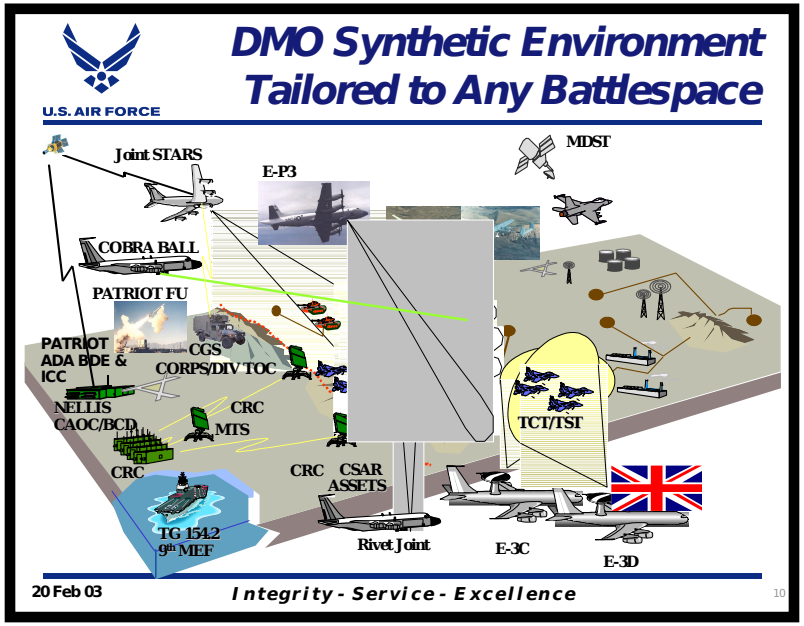
- Through Simulation, Practice Complex Missions that Need a "Total Team" Environment for Realism
  - Grow Toward Joint and Coalition
  - Link C2, ISR, Space, IO, Shooters
  - Explore the Seams; Work Through Disconnects; Rewind/Replay
- Train/Rehearse in Future Battlespaces = Combat Seasoning
- Use Anticipated Battlespaces for Decision Support Prior to and in Combat
- Integrate Capabilities that Normally are Rough on Day One of Conflict
- Leverage Realistic Battlespaces for Warfighter Eval of New System or Processes and for Tactics, Techniques, and Procedures Development



DMO Overview

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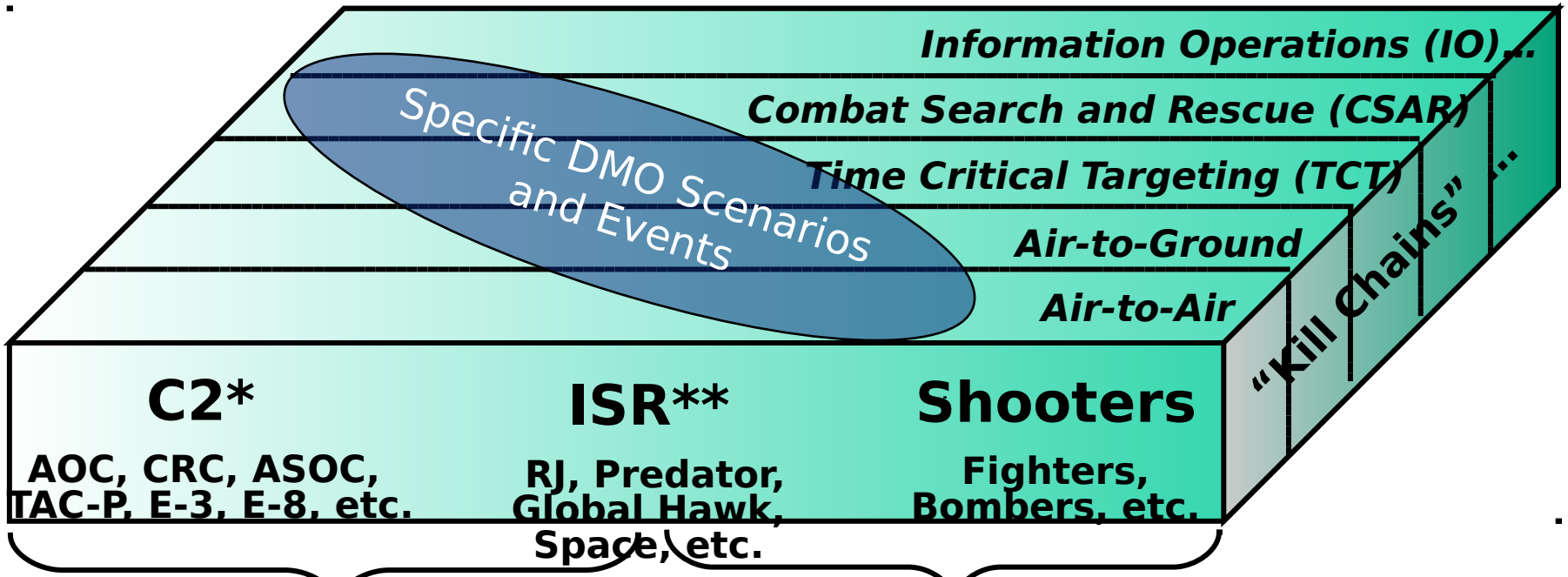

Frequent C2 Battle Management Training Across Kill Chains

Daily Sensor/Shooter Training for Specific Kill Chain Executors

Periodic Integrated Mission Training and Rehearsal (Desert Pivots and Virtual Flags)

*Command and Control (C2)

**Intelligence, Surveillance, and Reconnaissance

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CSAF Guidance

- **Goal: Use Synthetic Environments (Mix of Live, Virtual, and Constructive) for Support to Operations**
- **Guidance from General John Jumper, CSAF**
  - **"Clearly the [DMO] synthetic battle will be fo from TACCSF*." (Nov 00 as COMACC)**
  - **"… create a synthetic battlespace for ISR, AO shooters, space, info, etc." (Sept 01)**
  - **"DMO should lead JSB [Joint Synthetic Battlespace] ." (Oct 01)**
  - **"… most appealing is the image of being able to bring together precious platforms … to practice those most difficult scenarios we are increasingly being asked to do …" (Dec 02)**

***Theater Air Command and Control Simulation Facility at Kirtland AFB, New Mexico, Detachment 4, Air Force Command and Control Test and Innovation Group of the Air Warfare Center (AWFC)**

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CSAF Guidance

- ***During 23 July 02 DMO Update Briefing:***
  - **Make DMO a Funded Program**
  - **Promote New Mindset; Use Lean Program Manageme**
  - **Stress Mission Rehearsal and Full-Scale TCT/CSAR**
  - **TACCSF, as DMO Center (DMOC), Leads DMO Syntheti**
- ***During 7 January 03 DMO Update Briefing:***
  - **Include Precious Assets for Full-Team Practice in DMC**
  - **Certify Air Ops Center (AOC) Team and JFACC Using D**
  - **Conduct Aerospace Expeditionary Force Mission Rehe**
  - **Tell the DMO Story: Air Force Training Transformation**

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"The challenge is to have an integration of our systems so that we benefit from their contribution to the battlefield."

James Roche, Secretary of the Air Force

Required Capability Chart

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FYXX	FY03		FY05	FY07	FY09
Block 40	Block 0		Block 10	Block 20	Block 30
Warfighting Integration	Increasing Special Ops (SOF) and Sister Service Participants	Increasing SOF, Sister-Service, Multi-National Participants	Increasing Total Force, Joint and Coalition Participants	Integrate Into Joint National Training Capability NLT	Total Force Joint, Coalition Distributed Mission Rehearsal
"DMT"	Air-to-Air Partial Laydown	First Air-to-Ground Inclusion	Inclusion of USAFE, PACAF, and SPACEAF Assets	Sister-Service Inclusion	Coalition Inclusion
Simulators/Simulations to Fill "DMT" Gaps	Integrate with CAS Network, Add F-15E, Integrate More ISR	Integrate B-1, A-10 Interim Solution, Use AFRL F-16 Air-to-Ground	Integrate Simulation of AOC Functions	Improved Battlestaff Training Simulations	Seamless Integration of C2ISR and Other Sims to Backfill for Live/"DMT" Entities
Security	MLS 0 (Current Solutions & AFRL Research)	MLS 1.0 (Interim Solution for "DMT" Attempt to Integrate Diamond Matrix	MLS 2.0 (Full Solution for "DMT")	MLS 3.0 (Full Solution for Coalition DMO)	MLS X.0
Library of Synthetic Battlespaces/Scenarios	Versions of Persian Gulf, Afghanistan, Red Flag	Improve Versions and Generate Additional Regions of Interest	Leverage Joint Databases and Scenarios	Leverage Coalition Databases and Scenarios	Library Selections on Demand from Deployed Locations
New Database Generation	2 Months	1 Month	7 Days	3 Days	Hours/On Demand
New Scenario Generation	6 Months	7 Days	3 Days	Plug, Accredit, Play	Plug, Accredit, Play
AOC/AEF Rehearsal	Develop/Evaluate Processes for Air and Space Expeditionary Force (AEF) Rehearsal	AEF Rehearsal;Develop Air and Space Ops Center (AOC) Certification Capability	Full AEF and AOC Rehearsal and Certification Capability	Coalition Rehearsal	Ever Increasing MR and Certification Capability
Decision Support	Requirements Identified	Prototype Block 0 JFACC Toolkit Elements	Collaborative JFACC Toolkit Block 10	Collaborative JFACC Toolkit Block 20	Collaborative JFACC Toolkit Block 30

Future DMO Events

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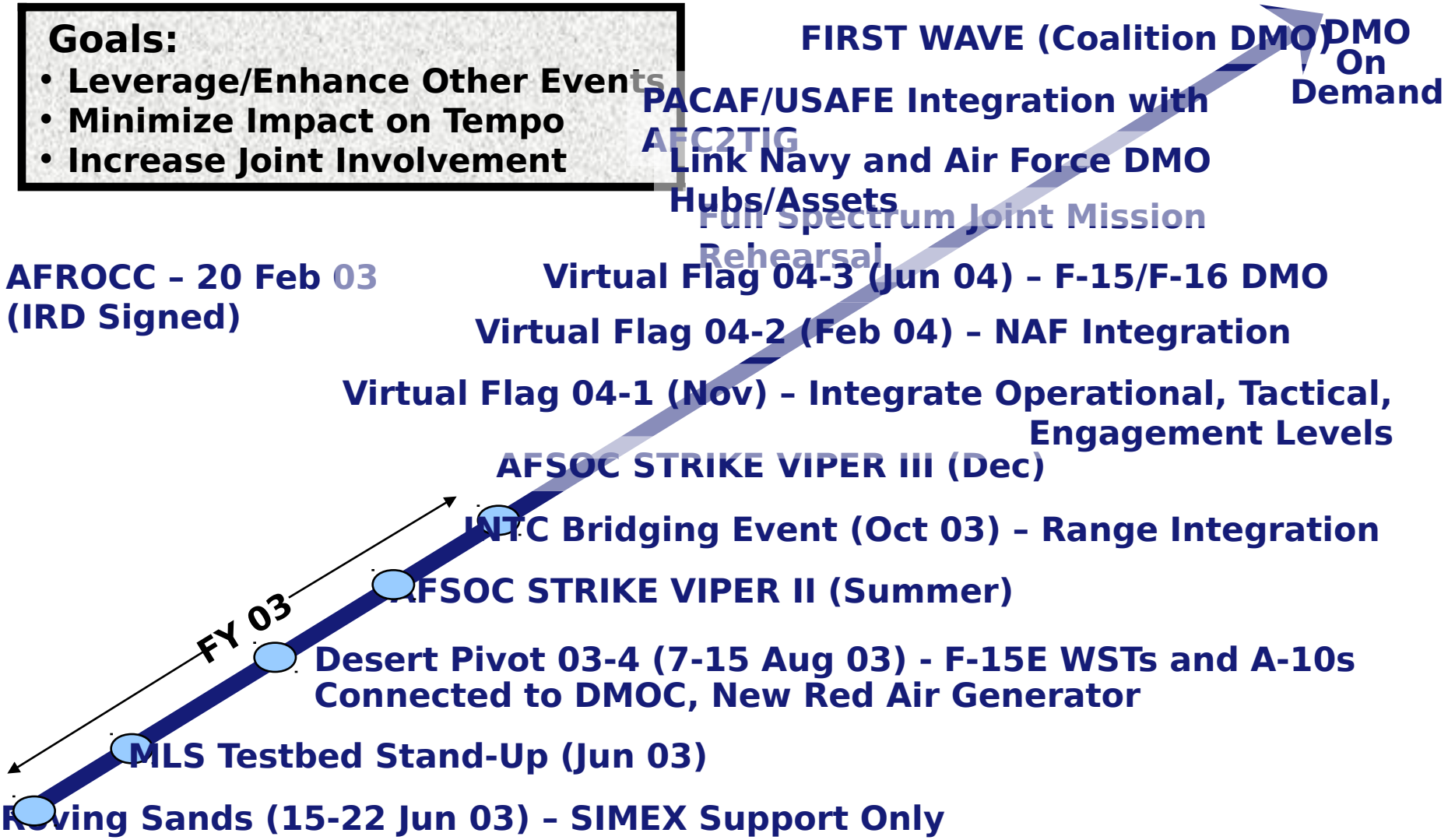
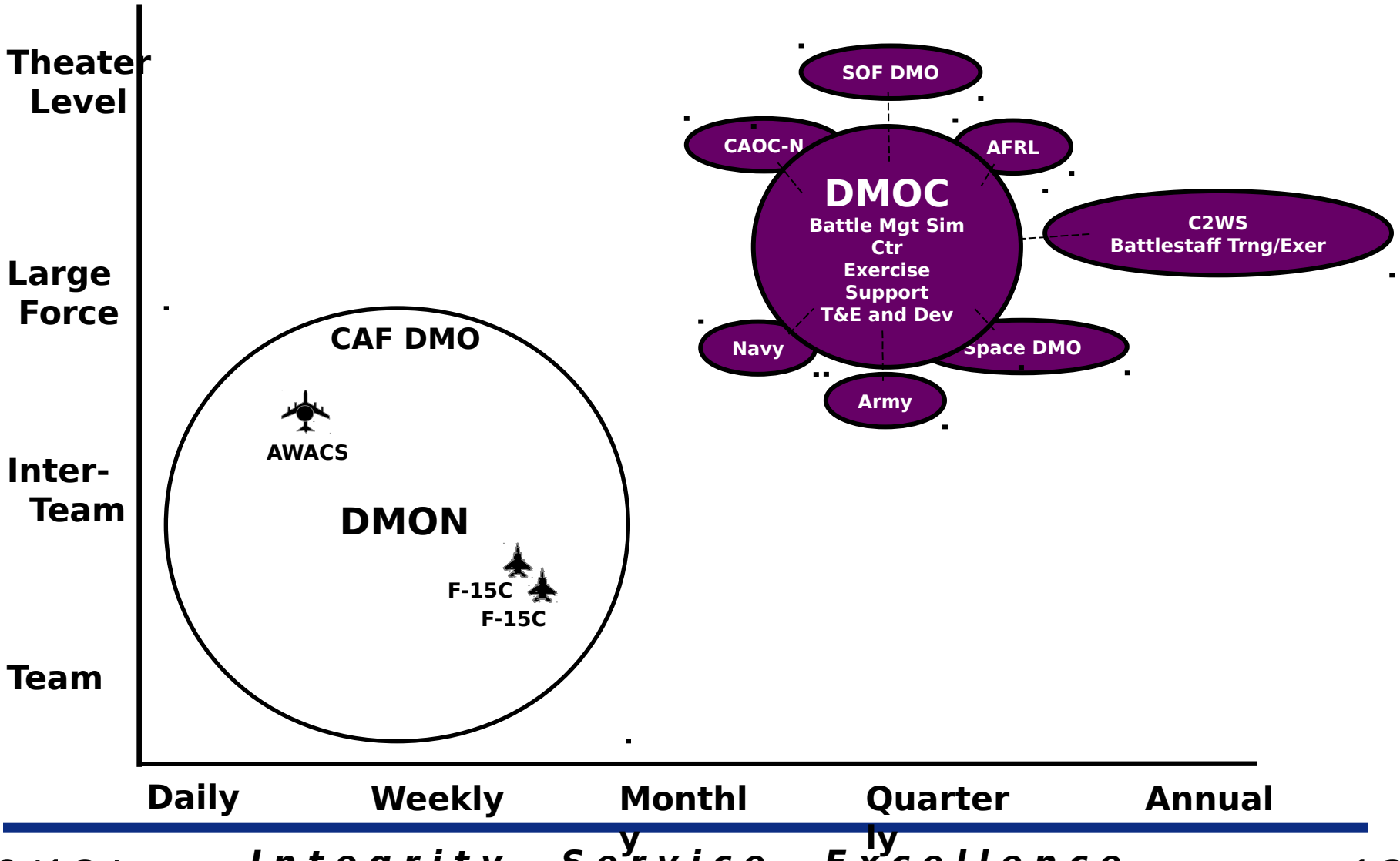
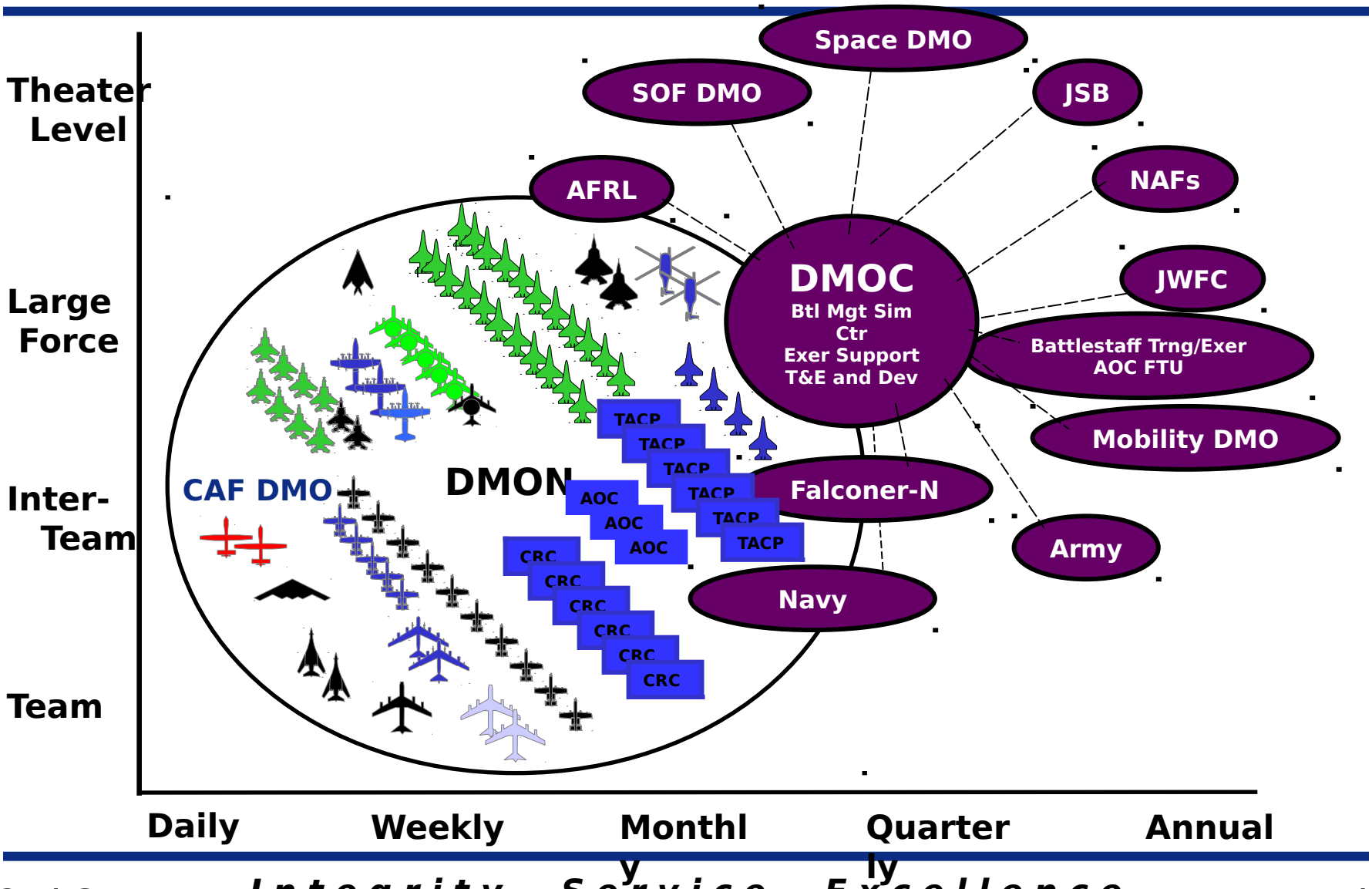
Goals:
- Leverage/Enhance Other Events
- Minimize Impact on Tempo
- Increase Joint Involvement


FIRST WAVE (Coalition DMO)
DMO On Demand
PACAF/USAFE Integration with AFC2TIG
Link Navy and Air Force DMO Hubs/Assets
Full Spectrum Joint Mission Rehearsal
AFROCC – 20 Feb 03 (IRD Signed)
Virtual Flag 04-3 (Jun 04) – F-15/F-16 DMO
Virtual Flag 04-2 (Feb 04) – NAF Integration
Virtual Flag 04-1 (Nov) – Integrate Operational, Tactical, Engagement Levels
AFSOC STRIKE VIPER III (Dec)
JNTC Bridging Event (Oct 03) – Range Integration
AFSOC STRIKE VIPER II (Summer)
FY 03
Desert Pivot 03-4 (7-15 Aug 03) - F-15E WSTs and A-10s Connected to DMOC, New Red Air Generator
MLS Testbed Stand-Up (Jun 03)
Roving Sands (15-22 Jun 03) – SIMEX Support Only

Present Architecture



Future Architecture



DESERT PIVOT 03-1

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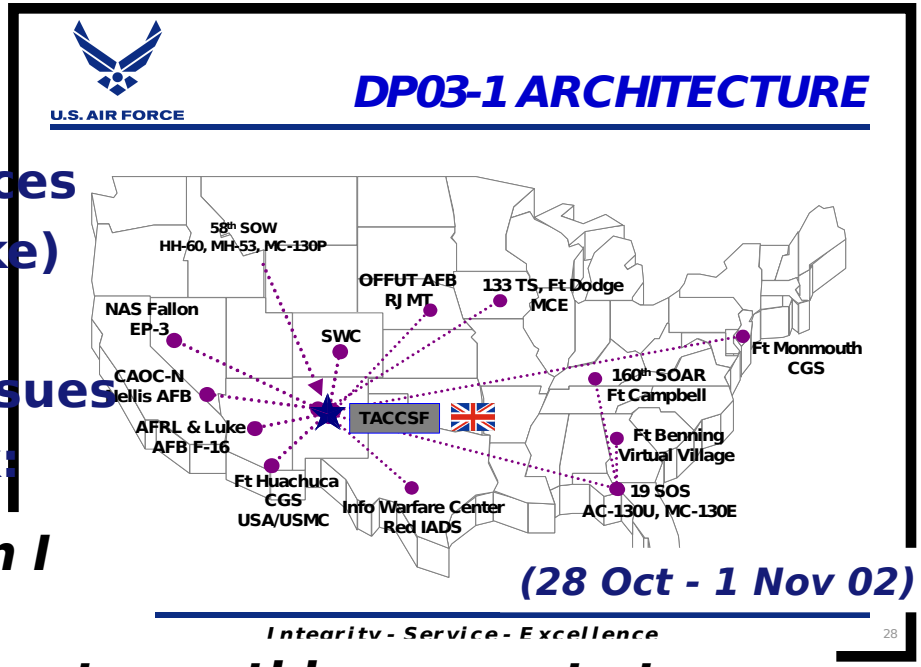
- Aligned with Red Flag
- Included Nellis CAOC
- Multi-Service with British Forces
- Integration of AETC Sims (Luke)
- Space & Blue Force Tracker
- Early Simulation Downtime Issues
- Positive Participant Feedback:



"The most seamless transition I have

"…realistic and cannot compare to anything we get at home."

"…TST support on top of it all helped to identify that JSTARS needs revise and rewrite how we train at home to support the entire kill-

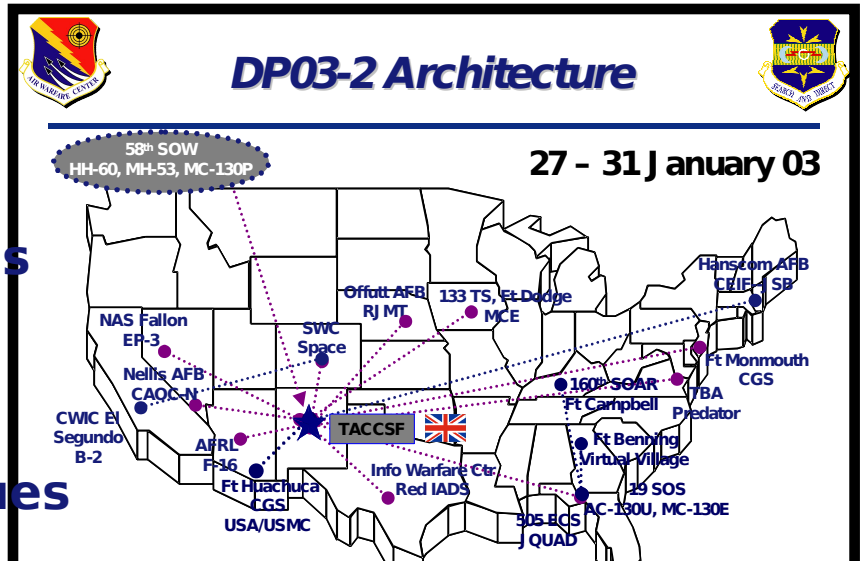
"…for the first time ever, space assets were able to ID a downed a as alive and ready for pick-up"

"I've never actually seen this level of training and different C2ISR interaction in my career…a must for IQT and CT."

DESERT PIVOT 03-2

U.S. AIR FORCE

- Planned to be Aligned with Red Flag
- Included Nellis CAOC
- Multi-Service with British Forces
- Integration of F-16 Sims (AFRL)
- Space & Blue Force Tracker
- Early Simulation Downtime Issues



est training in two years…only venue that exercises entire GTACS missio

Entire CSAR process and new technologies exercised."

Great interoperability, most robust ELINT training"

"Best exercise ever participated in—Hooah!"

"The only place to train for TMD!" ***"The future of training is here"***

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DMO Next Steps

- Define Capability DMO will Deliver and When
- Build Roadmaps for Supporting Programs
- Brief CSAF as Directed Before June 03
- Promote DMO to Services and JFCOM; Integrate with Their Similar Efforts

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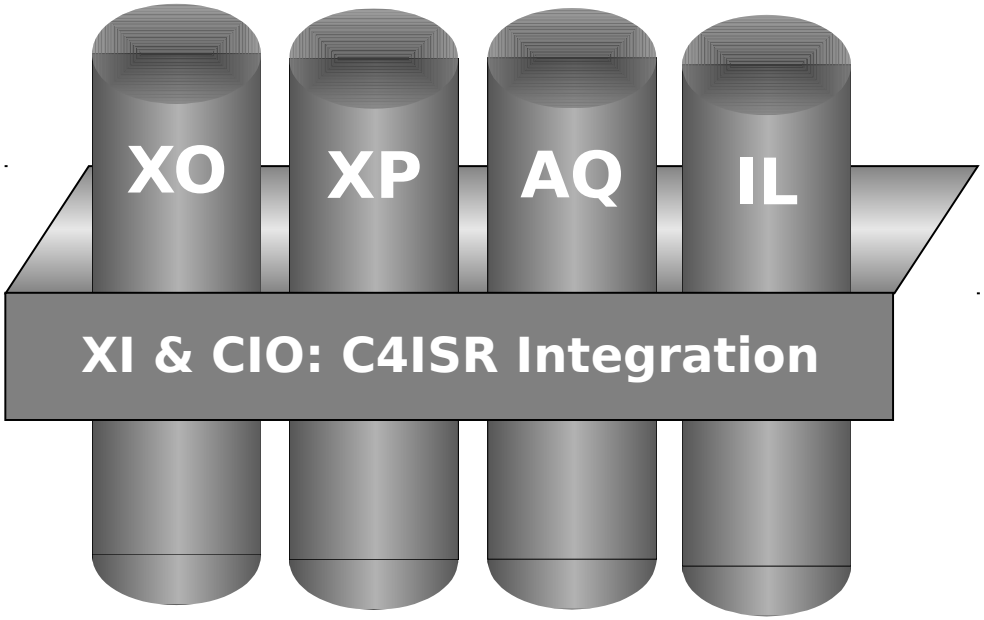
Horizontal Integration



We can't solve a horizontal integration problem by instituting another vertical organization. We must change the mindset and just do it!

Headquarters U.S. Air Force

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Distributed Mission Operations (DMO)

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Backups

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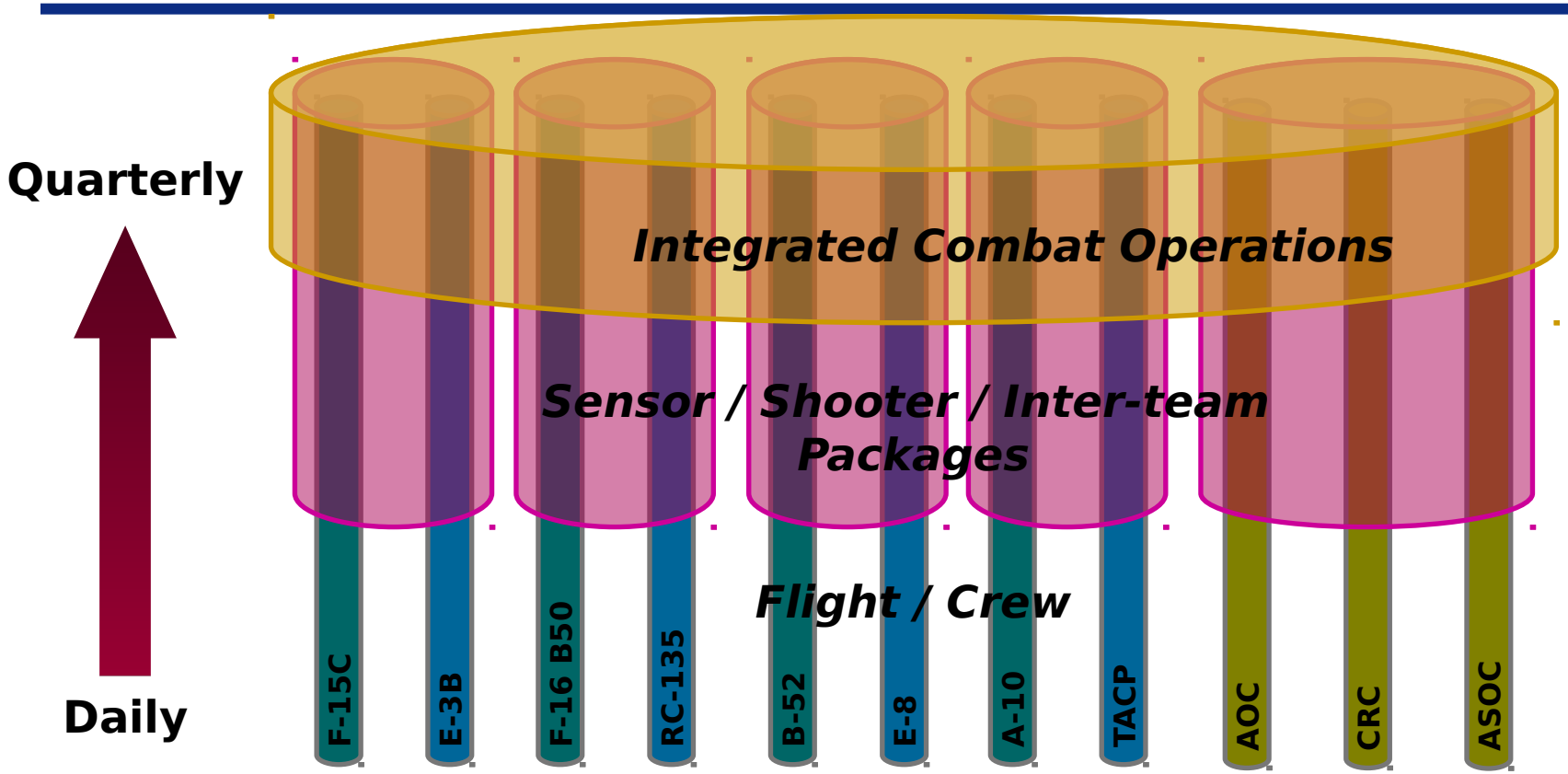
Integrated Training for Integrated Combat Operations



- Daily training for flights and crews
- Sensors, shooters, and C2 networked for specific objectives
- Integrated Combat Ops trained through Virtual Flags

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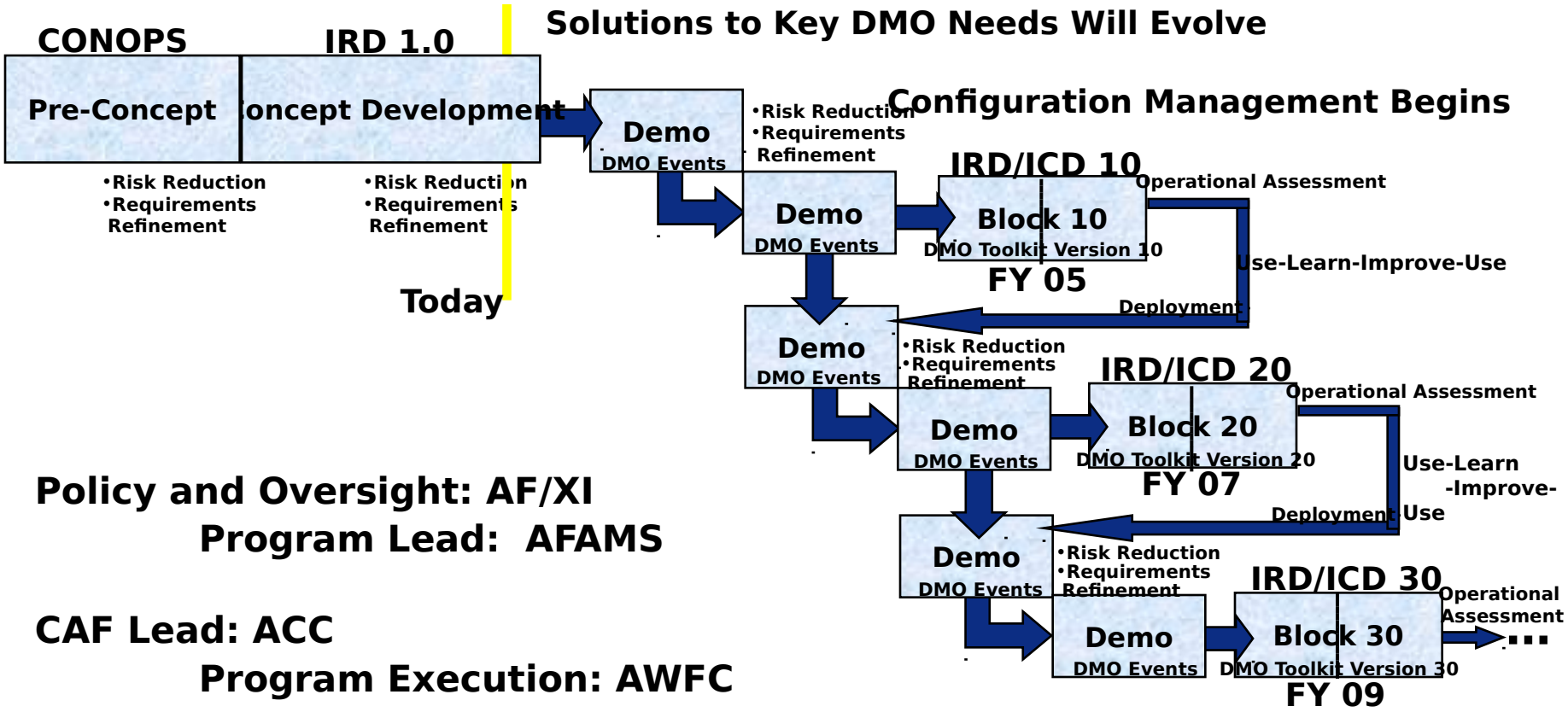
DMO Evolutionary Improvement

DMO Block Delivery Process



Policy and Oversight: AF/XI
Program Lead: AFAMS

CAF Lead: ACC
Program Execution: AWFC

IRD Approval/Validation Authority: AFROCC

Relationship of DMO to JSB

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Briefed During 23 July Update:

Relationship of DMO to JSB

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- DMO Depends on the Joint Synthetic Battlespace (JSB) – the electronic representation of the world
- DMO Requires JSB to Link ISR, Shooters, AOC, Space, SOF … in a Battlespace of Their Choosing

- DMO will Leverage JSB Improvements Driven by Other Users – Analysis, Warfighter (DMO including DMT), and Acquisition/Joint Distributed Engineering Plant (JDEP)
- DMO Defines JSB Operations and Training Requirements
- DMO Focuses JSB on Direct Support to Warfighter

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On Track:

- DMO Defines and Drives JSB Requirements for Ops & Tng (OPR: AFC2TIG)
- JSB Initial Requirements Document (IRD) Completed (OPR: ESC/CX)
- JSB CONOPS Revision in Coordination (OPR:

"JSB-AF will provide synthetic environment capabilities for the operational battlespaces of on-going efforts such as DMT, JDEP, and DMO … will initially focus on … how warfighters train for battle." JSB-Air Force IRD

Relationship of DMO to DMT

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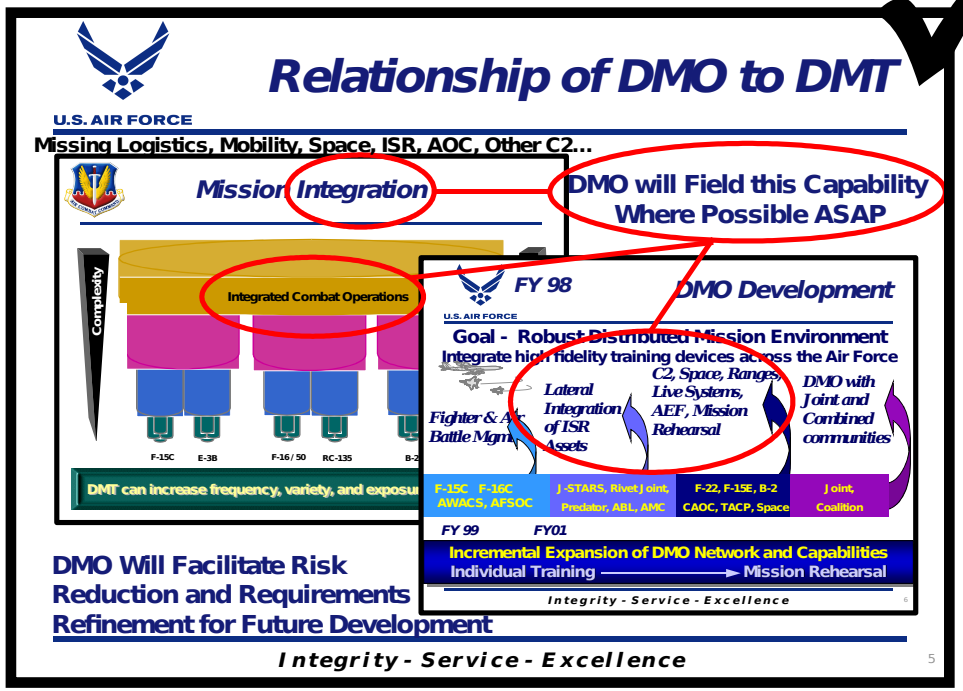
Briefed During 23 July Update:


Relationship of DMO to DMT
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Missing Logistics, Mobility, Space, ISR, AOC, Other C2...
Mission Integration
DMO will Field this Capability Where Possible ASAP
Complexity
Integrated Combat Operations
F-15C
E-3B
F-16 / 50
RC-135
DMT can increase frequency, variety, and exposu
FY 98
DMO Development
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Goal - Robust Distributed Mission Environment
Integrate high fidelity training devices across the Air Force
Lateral Integration of ISR Assets
C2, Space, Ranges, Live Systems, AEF, Mission Rehearsal
DMO with Joint and Combined communities
F-15C F-16C AWACS, AFSOC
J-STARS, Rivet Joint, Predator, ABL, AMC
F-22, F-15E, B-2 CAOC, TACP, Space
Joint, Coalition
FY 99
FY01
Incremental Expansion of DMO Network and Capabilities
Individual Training
Mission Rehearsal
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DMO Will Facilitate Risk Reduction and Requirements Refinement for Future Development
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On Track:

COMACC Direction for DMT:
- Orient to the Kill Chain
- Focus: Global Expeditionary O

ACC/DOJ Goals for DMO:
- Build into Virtual Flags
- Evaluate for AEF & AOC Spin-U
- Link DMT to DMO Via DMOC

ACC/DO/DR and AC2ISRC
- Staffing DMO/DMT Funding

"...the revised [DMO] CONOPS more accurately reflects recent efforts to focus near-term DMO actions on value-added applications for aircrews, mission crews and AOC staffs as these personnel prepare for AEF tasking."
Maj Gen Stein, ACC/DO (4 Nov 02)

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DMO Vision and Goals

<u>Vision</u>: Full-Spectrum Battlespace Dominance in Joint and Coalition Operations Through Integration of Live, Virtual, and Constructive Assets

<u>Goals</u>:

- **Integrate and Assess War-Altering Capabilities Across Compartments and Tribes Before Crises:**
  - ***Judge the Value to Combat Actions***
- **Provide a Force Seasoned to Fight as if They Had Been in Combat in that Battlespace Before:**
  - ***Combat Experience Before Combat***
- **Information Superiority and Predictive Battlespace Awareness through Improved Decision Support:**
  - ***Anticipate and Counter Enemy Actions***

STRIKE VIPER I (12 – 13 Dec 02)

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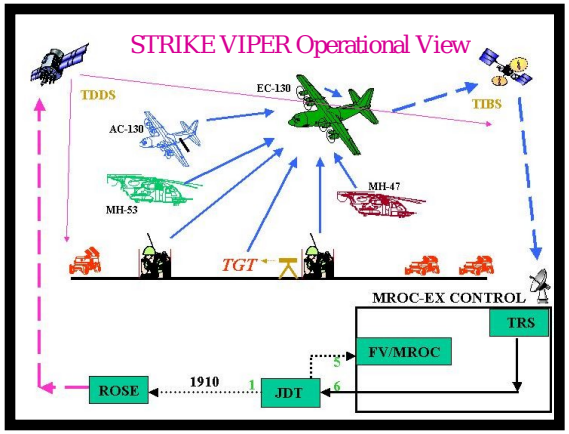
SOF Signals Training/Rehearsal System (SOFSTARS)



- More Realistic Combat Training Environmen
- Integrate Live, Virtual, and Constructive
- Include National Intelligence Capabilities
- Enhance SOF Aircrew Training Devices
- Improve Combat Mission Survivability & Let

STRIKE VIPER:

- ISR/EW Interoperability for SOF Mission Rehearsal ATDs
  - Determine Delta Between SOF Mission Rehearsal Capability & I
  - Sensor to Shooter Testbed
- Evaluate Near Real-Time Intel Feeds for SOF: Blue Force Tracking, C
- Prototype Integrated Mission Rehearsal Architecture for Future DM
- SOCOM and AFSOC Involvement; OSD Funded
- STRIKE VIPER II (Summer 03) and STRIKE VIPER III (Dec 03)

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DMO for Special Operations

- **Team Training via High Fidelity Linked Simulators and Constructive Simulations Using Representative Battlespaces**
  - ***Mission Ready Teams***
- **Covert Mission Rehearsal On Station in Simulators and Using Deployed Simulation Capability**
  - ***Teams Seasoned for Combat in that Battlespace***
- **Fused ISR and Predictive Information Integrated for Crisis Action Planning and Decision Support**

- **Capabilities Viewed by SECAF in April 2002 at 19th SOS, Hu**
- **SECAF Was Impressed with Progress in Desert Pivots and with Live-Virtual "Call for Fire" Demo using Blue Force Trac**

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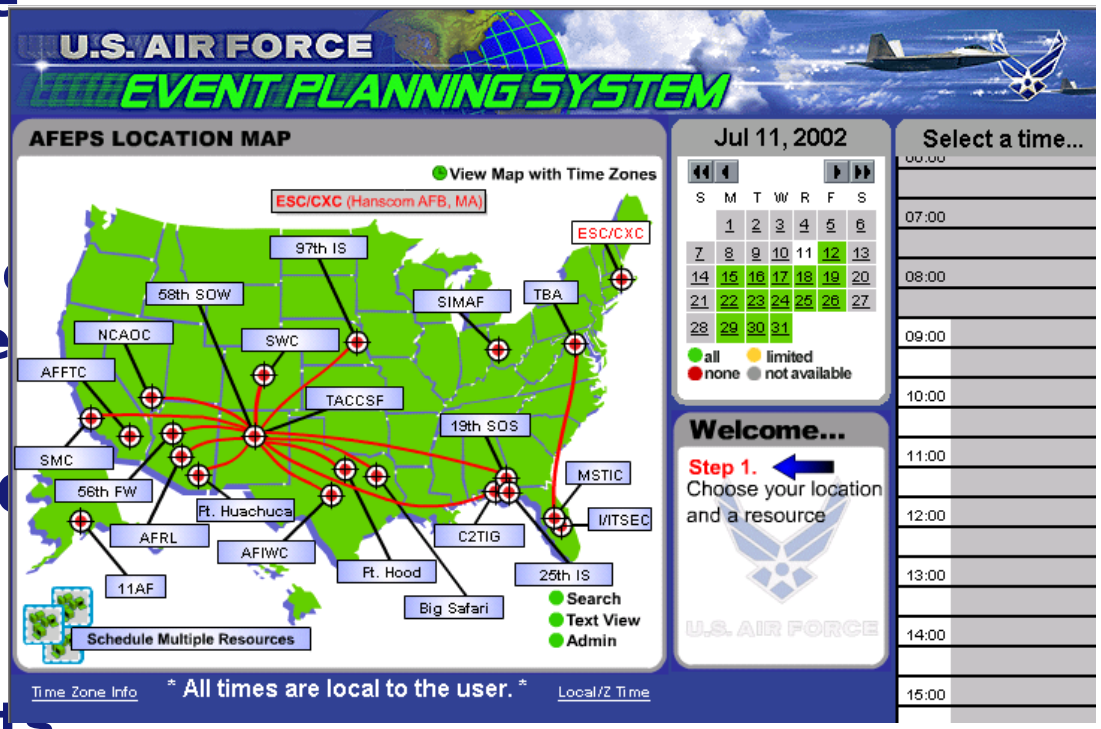
Event Planning System (EPS)

- Fully-Capable Web-Based Scheduling & Resource Informatio
- Leveraged From United States Army System for <$10K
- Will Capture Baseline of DMOResources
- Provides DMOC With Tool for DMOEvent Planning & Informati Sharing (Already Use
- User-Friendly with Minimal Follow-(Costs
- Now Incorporating $65K in Improvements



http://afmsrr.afams.af.mil/eps